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SYSTEMS ARE NOT SOLUTIONS:
ISSUES IN CREATING INFORMATION SYSTEMS¹
THAT ACCOUNT FOR THE HUMAN ORGANIZATION¹

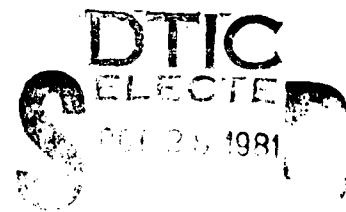
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An increasing number of organizations are measuring and monitoring how well they manage their human resources. A few are reporting the results of these measurements to the public. But does this increase mean that some day most organizations will feature internal information systems and external reporting systems focused on the management of the "human organization?" Systems that will enable society to better control and manage its social organizations?

This is still an open question as there are as many obstacles to the implementation of these systems in most organizations. One is political. Critics on the left view the systems as, at best, "sops" to personnel people and, at worst, as tools with which to further exploit working people. Critics on the right view them, at best, as public relations devices and, at worst, as silly "do-gooder schemes that could potentially lead to unwanted dysfunctional government controls." But their views converge on the point that most organizations do not want to make a public accounting of how well they manage people and, more to the point, that they do not want to be held accountable for it.

Another obstacle centers on the systems themselves. Researchers from accounting and organizational behavior fields have begun to theorize about, construct measures for, and debate the implications for "management control" of the proposed information systems (see e.g. Lawler, Nadler, and Cammann, 1980). Predictably this has led to claims and counter-claims regarding the validity of underlying theories, the operational utility of the measures, and the advisability of using the results in one way or another (Rhode and Lawler, 1973; Mirvis and Macy, 1976a). Research on these matters has been minimal and has largely served to just provide more grist for the mill for proponents and detractors.

tors of the various measurement systems. It may well be that arguments about validity and use are ideological (Flamholtz and Cook, 1976). But, the obstacle is real.

A third obstacle is the lack of understanding and knowledge as to what these systems can and cannot do in, to, and for organizations. Also lacking is understanding about how managers and employees use this data and the public receives it, and as to whether human resource management can be affected by information at all. Although there is documentation that personnel and attitude data on human resource management can be of use to organizations, the two best known human resource accounting systems, in R. G. Barry Corporation and in Abt Associates, are no longer in existence. Thus, the most significant obstacle of all may be that such accounting and information systems simply are not "solutions" to the "problems" of managing the human organization. This plainly pragmatic and researchable concern is the subject of this paper.

This is a report on a program of research conducted by the authors over the past ten years; initially at the Institute for Social Research (IRS), of the University of Michigan, and more recently at our separate institutions. It reports on two field studies in which the authors developed, implemented, and evaluated the impact of new information systems. The first study involved the creation of an internal information system that combined financial and human resource data. It used a monthly summary report which was routed to work groups for collaborative planning and problem solving. In the second study, the authors devised a reporting system on the quality of work life. It reported the results in the firm's annual report. A close look at these studies highlights how such information systems "work" and suggests a number of factors to

be considered in their development and implementation. Before turning to the details and results of these studies, some background information on the program of research bears review.

A Program of Measurement of the "Human Organization"

All accounting systems are based upon theories that identify and link variables descriptive of some aspect of the "behavior" of the firm. Social accounting systems are based upon more and less developed theories of social costs and benefits that come from several of the social science disciplines (Klein, 1977). For human resource accounting, Flamholtz (1972) and Likert and Bowers (1973), among others, have proposed theories concerning the value of individuals in organizations and of the overall value of the human resources of a firm. In the beginning of our research program, Lawler (1974) proposed a model of the organizational and personal factors that influence employee's attitudes and behaviors in an organization and, ultimately, the effectiveness of the organization and quality of work life of its members. It proposed that:

The characteristics of individuals combine with the characteristics of the work environment to produce attitudes and beliefs. Job, technology, and organizational structure are crucial aspects of the work environment. In turn, organizational effectiveness is a function of the combined behavior of individuals as modified by the kind of organization structure and control system that is used to coordinate their behaviors (Lawler, 1977, p. 580).

In addition, it noted that the "external environment is an important influence on both the kinds of behavior that results from attitudes and the effectiveness of the organization" (p. 580).

This perspective was by no means intended as an all-inclusive model of the human organization and its effectiveness, nor did it purport to specify distinctive bi- and multi-variate relations between the variables and their many contingent linkages. Rather it was proposed as a framework

for identifying broad classes of human organization variables and their impact on people as a starting point for measurement.

The kind of measurement suggested by the model posed many problems as there were no "accepted procedures" for accounting for all of the variables identified in the model. Clearly, the financial accounting framework was inapplicable as the variables in the model were neither linearly related, nor additive, nor could they all be operationalized in monetary terms. Nonetheless, its principles of measurement could be adapted to account for some of the variables. Thus, Mirvis and a colleague developed standardized definitions and measures of a roster of behaviors in organizations. These included measures of employee's absences, turnovers, performance and the like, means for reporting them as incidents and rates, and procedures for translating them into monetary costs (Macy and Mirvis, 1976). Lawler and colleagues turned their attentions to measuring the non-monetary variables in the model. They developed survey instruments, interviews, and observation schemes for measuring characteristics of the job, the organization and the psychological "states" of organization members (Seashore et al, forthcoming; Lawler, 1975). The measures were developed with an eye to both their construct and face validity.

The overall research program at ISR was designed to "test" the feasibility of measuring the human organization in this way, the validity of the overarching model and many hypothesized relations within it. A number of organizational change projects have been evaluated to date using an "adaptive" experimental design (Lawler, 1977) in conjunction with these assessment instruments. In addition, specific studies have been undertaken to validate components of the model such as the link

between changes in attitudes, behaviors, and costs (Mirvis and Lawler, 1977) and between changes introduced in the programs and their financial and social benefits (Mirvis and Macy, 1976b).

The two studies reported here were undertaken to determine whether organizations could use these measures for accounting and control purposes and, if so, how they could (and would) be used. The American Accounting Association (1966) states that the purpose of accounting systems is to provide organizations with information for making decisions about the use of resources, for directing and controlling the use of resources, for monitoring and reporting on the custodianship of resources, and facilitating social control within the firm. In this light, it was decided to study whether creating systems that accounted for the human organization could have such an impact on human resource management.

Study 1: Creating an Internal Information System¹

In 1974, Mirvis, working with two colleagues at ISR, Cortland Cammann and David Nadler, contacted a full service bank and proposed the creation of an information "feedback" system. The system, as proposed, would gather performance, personnel, and attitude data, from records and directly from employees, and return it periodically to them and their managers for analysis, problem solving, and goal setting. The idea for this system came from Nadler's and Cammann's previous work on survey feedback and managerial control. Briefly, Nadler discovered that most survey feedback efforts were "one shot" data collections that focused exclusively on attitudinal indicators of the human organization and that were not integrated with formal reporting and reward systems (Nadler, 1976). Thus, he recognized the need to link performance and process data in an organization's data-base and to "feedback" that data within an accounting and control system. Cammann (1974) noted, however, that many control systems promoted traditional, "top-down" managerial control with an emphasis on short-term results and the consequence of numeric "gamesmanship." Thus, he recognized the need to distribute data to work groups and to train managers for its use in collaborative problem solving. These ideas appealed to the vice-president of the bank's retail branches who, in consultation with branch managers, agreed to experimentally introduce the information system in ten of the bank's retail branches with ten others serving as controls.

¹Portions of this summary are adapted from Nadler, Mirvis, and Cammann (1976), Nadler, Cammann, and Mirvis (1980), and Mirvis (1981).

The Design of the System

The proposal to the bank called for employee participation in system design and implementation. Accordingly, a "diagonal slice" task force of branch personnel was formed and charged with a design task. The task force included two branch managers, one assistant manager, one financial consultant, two teller supervisors, and two tellers (representing all of the jobs within a branch), as well as the researchers and a representative of the vice-president. The task force met regularly for a period of approximately three months. They first developed a working contract that spelled out goals, responsibilities, and the group's "ground rules." They then compared the "model" of the human organization presented earlier in the paper with their own "models" of branch effectiveness and a satisfying work life to identify variables to be included in the feed-back system. The performance indicators selected included measures of teller performance (e.g., balancing accuracy, number and dollar volume of bad checks), loan performance (e.g., installment loan incomes, percentage of delinquent loans), and overall branch performance (e.g., profitability as a percentage of budget). The measures of the human organization included teller training (e.g., the number of specific tasks tellers in the branch were qualified to perform), employee commitment to the branch (e.g., absenteeism and turnover), and survey data on employee attitudes and perceptions. All data were to be reported in aggregated form, reflecting work group or branch level results.

Finally, the task force decided that the information would be distributed monthly, and that it would be sent to each branch manager for distribution to branch employees. The monthly cycle was chosen to

be consistent with other information cycles and to coincide with existing monthly branch meetings.

Implementation of the System

The new information system was implemented in four stages. The first stage was the creation of the task force itself while the second stage involved meetings in each of the experimental branches to introduce the new system. Meetings were run by task force members from the branches, who explained the way the new system had been developed, its purpose, and the next steps in its implementation.

The third stage involved a training session (6 hours long) run by the researchers to familiarize the managers and supervisors in the experimental branches with the nature of the new system and the ways it could be used effectively. The training session included a detailed explanation of the information contained in the monthly feedback report and a role-playing session with video tape playback.

In the training session, the managers and supervisors were encouraged to review the data as a "management team" and to meet with all branch employees on a regular basis so that the data would be worked with in both peer and hierarchical groups. Moreover, the managers and supervisors were also assured that new information contained in the feedback reports would not be used to evaluate their performance by the vice president. This was done in order to reduce the likelihood that they would try to "beat the system" by falsifying the data or pressuring employees to show short-term performance gains.

The fourth stage involved setting up the data collection and processing systems and having the feedback reports prepared and sent to the branches each month.

The System in Use

The first few months of the study were planned as time for the management teams in each branch to become better acquainted with the system and experiment with different ways of using it. The first systematic data on their actions was collected three months after the system was operational. Interviews showed that the branches were using it quite differently. In one branch, for example, the employees did not even know the feedback system had been implemented because the branch manager had been putting the feedback reports in his desk drawer; in another, the manager had held training meetings to discuss the measures and had followed up by holding weekly meeting with the teller and financial consultant groups to examine the data, solve problems, and set goals. Between these extremes, approaches to using the system included branches where the feedback information was posted but seldom discussed in formal meetings, and branches where the information was discussed in groups but few attempts were made to find solutions to the problems that emerged.

In addition, branch managers and supervisors appeared to have differing degrees of success in stimulating employee participation in the process. Some managers and supervisors reported that employees were hesitant to discuss the information in meetings or to make suggestions for changes. In some cases, they were able to draw the employees into the discussions; in others, however, the employees never became involved.

The initial interviews did stimulate action in some branches. In one case, the management team started holding regular meetings to discuss the feedback and solve problems. In another, the assistant branch manager, who had responsibility for running the feedback system in the branch, came to the researchers and asked for help in figuring out how

to build participation in the branch. The manager who had been putting the feedback in his desk drawer began to post the information in his branch, and the teller supervisor in the branch began to hold feedback meetings.

After the first six months of the study, a meeting was held with managers of the branches to discuss their "learnings." A similar meeting was held with teller supervisors. By that point, their period of "experimentation" had ended and most had formed their opinions about what the system could, and could not, do in their branches and they had developed a relatively stable pattern of using (and not using) the system. Over the last six months of the study, these patterns endured. The feedback data was still regularly distributed to employees in all the branches, and in most, there was some discussion of the results. Variations remained, however, in the frequency of meetings, the people who led discussions, and the extent to which employees actually got involved in problem solving and goal setting.

By the end of the experiment, the researchers observed that the feedback system was producing positive results in some branches and negative results in others. This was particularly striking among teller groups. Some of the teller groups had become actively involved in using the feedback system information to exercise control over their work. In one branch, for example, the tellers decided to try to increase the percentage of regular, as opposed to, budget checking accounts that were opened and in two months the ratio of regular to budget accounts changed from 1:2 to 2:1. In other branches, the tellers and their supervisors agreed to try to upgrade teller skill levels, and tellers learned to perform more tasks.

In the teller groups where the system was not used regularly, the results appeared to be quite different. The tellers felt that the feedback system was another organizational change imposed on them, and it seemed to be more burdensome than helpful. In at least one case, the teller group discussed their work schedule at a feedback meeting and, thereafter, began to question some decisions that were made by their supervisor. The supervisor thought this was undermining her position and authority, so she stopped holding the meetings, leaving the tellers angry, confused, and frustrated.

The effects of the feedback system on the financial consultants were less clear. It appeared that often the system was used informally and that the feedback information was not clearly differentiated from other sources of information. In most cases the information appeared to be used as a stimulus for problem solving, but most of the decisions were made by the branch managers with the financial consultants left to carry them out. The overall impact of the new system appeared to be positive, but not particularly strong and, in general, the financial consultants did not appear to perceive much change in their managers' behavior as a result of the experimental system.

The Importance of Using the System

Analysis of questionnaire data collected before and after the one year experiment in the branches, and analysis of performance data reflecting the first and last three months of the study, confirmed the conclusions drawn from the researcher's observations; overall, the feedback system had not "worked." Specifically, there were very few significant differences between the pre- and post-measurements for tellers in either the experimental or control branches, while in the

case of the financial consultants there were some differences which indicated a positive effect.

Given the researchers' ongoing observations, these results were not surprising. The observations did indicate, however, that the management teams that were using the system effectively were having some success with it. Thus, to systematically test the proposition that system use was related to its overall results, the same questionnaire was given to branch employees twice, six months after its start and at its conclusion. It asked them to rate the frequency of feedback meetings in the branch and the effectiveness of the meetings for solving problems, involving them in discussion, and setting future goals. The researchers then divided the branches into two groups--high users and low users of the system--based on the results of these surveys. Subsequent analyses showed that employees in high use branches were significantly more likely to see it as worthwhile, useful in problem solving and goal setting, and as making a contribution to branch effectiveness. In addition, changes in pre- and post-measurements for employees in the high use branches showed that the performance improvements for tellers in the high use branches were significantly greater than for those in low use branches. Moreover, they also showed that while attitude scores and turnover rates improved in high use branches, they actually worsened in low use branches. To more systematically test these findings, correlations between measures of system use and the change score measurements were computed. The results showed that feedback system use was directly related to changes in teller's attitudes, turnover rates, training levels, and performance.

The overall conclusion of the study, then, was that the newly created information had provided the information needed for monitoring, directing, controlling, and making decisions about the management of human resources in the bank. But, clearly, the management team's use of the system determined the kinds of social controls which developed in branches and their impact on the behavior and effectiveness of branch employees.

Implications for Design and Implementation

The key question raised by the findings that use determines effect is: What factors contributed to the management team's effective use of the system? In search of an answer Mirvis (1981) interviewed all management teams and identified a roster of factors associated with system use. It included: The existence of real or perceived problems in the branches at the start of the study, the leaders' and staffs' knowledge about, attitudes toward, and instrumental expectations for the system, and the compatibility of the system with related managerial structures, practices, and norms. A brief summary of these factors yields three major propositions about the potential of information systems to be "solutions" to the problems of managing the human organization.

Finding 1: A need for the system must be evidenced. In many respects the introduction of the bank's feedback system was a "textbook" intervention. By using the diagonal task force, forming management teams, training personnel in the use of the data, and introducing the system into the branches with task force members, the researchers were doing what system designers are supposed to do! Nevertheless, the implementation failed in a number of branches. One reason was that managers in those branches saw no need to change their behavior.

Subsequent analyses showed a high correlation between leaders' perceptions of the problems in their branches at the start of the study and their subsequent use of the feedback system. In the branch where the manager held an initial training session with the staff and followed it up with weekly meetings, the office had been "so far down," he noted, "that we couldn't see our salvation." By contrast, in another office, known as the "country club" because of its affluent clientel and easy pace, the manager felt the system was "useless" because the branch "ran itself." "Why rock the boat?" he asked.

The importance for design of these contrasting situations is clear. Just as financial accounting and monitoring systems are often the "brain-children" of the financial people, resource accounting and monitoring systems are often the "babies" of the personnel people. Like proud parents, they sometimes forget that others may not need or want to have their progeny around. While designers may make every attempt to get managers to "own" their information systems, some will "disown" them. In colloquial "systemantics" (see Gall, 1977), this can be framed as a proposition for designers of information systems:

Proposition 1.0: Systems cannot be solutions to those who have no problems.*

However, devilish designers, like proud parents who have childless friends, know that their progeny can also stimulate needs. One employee noted that her manager was "horrified by the initial scores" on a feedback report and made the decision "that change was in order." He recalled, "I thought the important thing . . . was not to react personally to the scores." An open and frank discussion of the results among managers

*In penultimate systemantics some insist on calling problems "opportunities."

was followed by a lively meeting with branch employees. As a result, the supervisor recalled, "We almost forgot to open the bank." This suggests a corollary to the proposition:

Corollary 1.1: Systems can unearth problems and create needs.

Can--but they can also stimulate "resistance" to change. Another manager confronted with unfavorable results became very defensive. "The people filling out the survey say communication isn't good, say they don't understand the objectives," he noted, "I don't believe it, but they say they don't." He felt that something might be amiss in the feedback mechanics, so he and his assistant changed their questionnaire responses next month, one checking higher than usual, the other checking lower. He found (surprise!) that the questionnaire means were unchanged. When the mathematics were explained to him, he stopped blaming the computer. Instead he concluded about the ratings: "That's not the way the staff feels." Another corollary then is:

Corollary 1.2: Systems cannot unearth problems that can be denied, wished or explained away.

Finding 2: The system must fill a need. For information systems to be "solutions" they must be perceived as useful for solving problems. That means users must understand them, must find their underlying "logic" consistent with their attitudes and beliefs, and must believe they will be of help to them. Here, a gap between system designers and users can impede implementation.

System user's needs to understand the system are often in sharp contrast to designer's needs to devise sophisticated models, precise measurements, and elegant computation formulas. In the bank, however, every effort was made to have the users design their own system and to use the researcher's expertise in design consultation and training.

But while most users understood the technical system at the bank, not all were prepared to use it to solve branch problems.

The information system integrated data on various aspects of branch functioning into a "model" of the human organization. But some managers found this model abstract and unrelated to their real life experiences. One noted the consequence: "I find things that are very absolute much easier to work with than things that are abstract," adding, "It's easier when you don't understand something . . . to go on with what you're trying to get done in other areas." This manager's model of branch functioning, emphasized that the way to improve branch performance was to be a "first class loan salesman" and "marketer." Thus, he saw little relevance in managing the human organization.

Other's "models" of branch effectiveness and work life were more congruent with that of the feedback system. One high user commented: "I went into this thing with the idea that it would help me involve everyone in the management process . . . I really think that's the way the process ought to take place." Overall the analyses showed managers and staffs who anticipated benefits from use of the system were more likely to use it often and well. A proposition for designers then is:

Proposition 2.0: Systems cannot be solutions unless they are "instrumentally" "logically" and "psychologically" appealing.

Interestingly, those who anticipated improvements in morale and branch cooperation were more likely to use it well than those who anticipated significant, short-term improvements in financial results. Clearly they had developed "reasoned" expectations as to what the system could and could not do. This suggests two corollaries to the proposition:

Corollary 2.1: System's "logic" can differ from user's "logic" and "psychologic."

Corollary 2:2: Systems cannot be solutions to all logical and psychological problems.

Finding 3: The system needs to be integrated into the "larger" system.

Organizations are made up of many complex interrelated systems. Problems are often caused by more than one system. Thus, a final proposition for designers is:

Proposition 3.0: Systems cannot be solutions to problems embedded in "larger" problems.

This proposition calls into question the overall design of the bank's accounting and control system. At the start of the study, the bank had a traditional control system that measured financial results that were monitored by top management and were used as the sole basis for financial rewards. The feedback system was set up as a separate system (the vice-president running the branches was asked to keep "hands off") and therefore was not integrated into the larger organization's control system. As a result, the system had an "operational ring" to one manager and was seen as "pretty damn threatening" to existing "control mechanisms" by another. Clearly the formal control system and the new feedback system were sending managers "mixed messages." One manager summed his reaction by noting he did not use the system because no one from branch administration had come and "reemed (him) out." Thus, to mix a metaphor, his use of the system "petered out."

In addition, the system was not fully integrated with existing patterns of control within the branches. One manager contrasted the two systems thusly:

"All of a sudden (the feedback system) seemed to kind of take management of the branch a little bit out of our hands. We spent a lot of time answering questions as to why we were doing things . . . We didn't really do that before . . . Prior to the project, (employees) went ahead and did what (they were supposed to) without questions about it."

Interestingly, the new and existing control systems may have been more integrated for the financial consultants. The results showed that these lenders in both high and low use branches recorded improvements in their attitudes and performance during the study year. The researchers postulated that given their relative autonomy, self-direction, and performance orientation, the presence of feedback data alone may have been an aid to their problem solving and "covert" goal setting. By contrast, the tellers, having less autonomy and control over their work, needed to discuss and evaluate the feedback results with their superiors and relied on them to plan ahead.

The findings showed that managers unable to run effective meetings with tellers caused more harm than good. While training had been designed to help them cultivate such skills, it was insufficient. One low user lamented, "In a human problem you're not at a desk, you don't make a quick decision . . . You've got to listen, listen, listen." He added that he was not "trained" to be a "good listener." Nor according to the bank's accounting and control system, was it his "job" to be.

This raises an important and complex problem for information system designers: Whether to see themselves as system designers faced with the task of implementation or as change agents faced with the task of changing an organization through information. The findings from this study clearly indicate that even with a sound information base, an efficient feedback mechanism, and a planned implementation, an information system alone may not change an organization. Findings 1 and 2 noted that this is because "users" may not have problems or may not perceive the system as the solution. But finding 3 suggests that even with problems and a sound solution, an information system will not change an organization unless other changes are made to support it.

It may have been that more training, a more supportive top management, and integration of the information system into the bank's control system would have lead to its institutionalization as standard operating procedure. As it happened the bank formed a new managerial-level task force who voted 3-3 on keeping the system. The vice-president then made the decision to discontinue it. The researchers concluded that such operational "fixes" would not have been sufficient to sustain the system. The problem centered not so much on the bank's existing control system, as on the "model" that sustained it and the bank's overall view of human resource management. Recognizing this, they recommended that new information systems be developed within an overall program of change in which an organization makes a commitment to changing all the systems--and the human resource culture that envelopes them--toward the end of more effectiveness and a better quality of work life. The absence of such a commitment may explain why so many human resource information systems do not "work" and why firms discontinue them. It suggests that in many cases system designers need to see themselves as change agents faced with the task of changing an organization through information. It also suggests two corollaries to the third proposition about information systems:

Corollary 3.1: Systems can only be solutions to "larger" problems when they are part of "larger" solutions.

Corollary 3.2: Systems cannot be a part of "larger" solutions for those who have no "larger" problems.

Study 2: Creating an External Reporting System

In 1977, Mirvis and Lawler, as part of a continuing association with a manufacturing organization, proposed to measure the quality of work life in the firm and to publicly report the findings. This idea

for the development of an external reporting system came from Lawler's (1976) ongoing interest in corporate accountability for the working lives of employees. There have been some instances in which corporations measured aspects of the quality of work life and reported it to the public, but a close look at those reporting practices (summarized in Ernst and Ernst, 1977) shows the measurements to be spotty and the reporting sometimes misleading. In no cases were the same standardized measures used on a consistent basis and typically the data were gathered and reported by management. The researchers saw three reasons for developing a standardized, audited, external reporting system.

A first was to test the feasibility of developing measures to assess quality of work life in the firm. At this point, the Institute's measurement package was being developed and the personnel record and attitude measurement procedures were still being "field tested." This measurement of a client organization provided a real test of the "face validity" of the indicators. A second was to test the practicality of preparing an impartial independent report on the results. Procedures for "auditing" personnel records had to be devised and it remained to be seen whether the "auditors" could freely report the data without management interference. A third was to assess the policy implications and the reactions of stockholders and the public to external reports.

The researchers argued to the organization that since the quality of work life can influence the organization's short and long term success, investors should see an independent assessment of how the corporation manages its human resources so that they can make intelligent decisions. Similarly, a case was also made that the public has a right to quality of work life information for it bears some of the costs of a poor quality

of work life (poor mental and physical health) as much as it reaps the benefits of a good one (employee involvement in the economy and community) (Lawler, Nadler, and Cammann, 1980). The researchers also argued that by publishing these results the organization would make clear to everyone within the organization its strong commitment to effective human resource management, and that by monitoring the organization could help assure that efforts would be made to do it well. Finally, with the growing interest in employee's rights, it was reasoned that data should be made available to current and prospective employees such that they might better plan their careers and make informed employment decisions.

These arguments appealed to the manufacturing organization whose rationale for going ahead was described by the Vice-President of Policy thusly:

We had always included a section about our people and their work in our annual reports, but these statements had begun to sound like "motherhood and apple pie" commentaries. How could we address this important part of our company in a more concrete and meaningful way?

As we discussed preparations for the 1977 survey with the Institute, we began exploring the possibility of publishing the results of the two studies in our 1977 annual report. At that time we concluded it might be a risky thing to do since we had no idea how the second survey might turn out. What if it showed that the quality of work life had deteriorated since 1975?! What would our stockholders and financial analysts think? But then we reasoned that this would not be much different from publishing financial results comparing the current year with prior years. The risk was more related to doing something new than we had done before. And as far as we could determine, no one else had tried it either. So we decided to go ahead.

It was also decided to assess the impact of the Quality of Work Life report on stockholders, financial analysts, employees, and other recipients. Once it had been decided who was to measure the quality of work life and who was to receive the data, the next step was to begin its collection.

Preparing the Report

Definitions of the quality of work life are plenty and varied. Their diversity is attributable partly to the interests of those who study it (academics from different disciplines), those concerned with improving it (corporations, government, unions) and partly to changing conceptions of employee rights and employer responsibilities in our society. For purposes of this reporting effort, an integrated view of the quality of work life was conceived of as including those characteristics of the organization, the workplace, and the work itself that influence employee's satisfaction, well-being, and behavior on and off the job. This broad definition encompassed the economic, social, and psychological aspects of work and incorporated both historical and current perspectives as to what constitutes a good quality of work life.

Accordingly the audit focused partly on broadly shared, contemporary criteria of the quality of work life: safety, wages, equal employment practices, and promotions. Records from 1975 through 1977 were audited and incidents of accidents, promotions, and so on were counted and expressed as rates using standardized definitions and measurement procedures. A number of factors were measured by a confidential ISR survey which was completed by 85% of the workforce. It assessed supervision in the firm, evaluation and reward practices, and the opportunities employees had to offer suggestions, air grievances, and participate in decisions. In addition, the survey addressed the satisfaction of employees with pay, job security, accomplishments, and other aspects of work, their satisfaction with their lives, and their outlook about their employment future.

Publishing the Findings

The results of the audit were to be published in the organization's annual report, but after the data was collected, and before the report was issued, the firm was acquired by the "white knight" corporation in order to prevent an unfriendly takeover. This obviated the need for an annual report. Nevertheless, the officers chose to publish a "Special Report" which was distributed in the same manner as the annual report had been in past years and which contained some of the same information. It included a two page section on the quality of work life in the corporation.

The first page contained a brief summary of the project, a description of the measures, and some guidance on how to read the figures. The second page reported the findings on the basic elements of work life and its impact on employees. The combined record and survey data showed, for example, that accidents had decreased from 2.5% to 1.7% from 1975 to 1977 and that the great majority of employees (92%) said that they were not exposed to dangerous or unhealthy conditions on the job. Data on wages, promotions, and job satisfaction were also favorable, although the firm's merit pay program and its employment practices with reference to women were not rated as favorably.

Readers of the report were invited to request a summary document that included information on the other aspects of work life, and comparative data on workplace practices from the region and from the National Survey of Working Conditions. The summary report also provided a detailed breakdown of the findings for different job groupings in the organization, and for women and minorities.

Reactions to the Audit

Inserted into the Special Report was a post-paid survey for readers of the quality of work life section. The questionnaire was returned by 142 readers. The results showed that readers were quite interested in the quality of work life in the corporation: Some 90% said they were at least somewhat interested while 70% said they were very interested. Nearly two-thirds said the firm's quality of work life was equally important to them as the firm's financial health.

The great majority were satisfied with the report's length and understandability. Most felt it contained the right amount of information, though nearly one-fourth would have preferred having more data. Some 85% of the respondents felt the report contributed to their understanding of quality of work life in the corporation. Moreover, 81% found it an important resource in evaluating the overall health of the firm.

The respondents were not only interested in receiving such information about the firm, over two-thirds stated that they were in favor of other corporations issuing such reports. About the same percentage favored the preparation of reports by outside parties.

A separate analysis was undertaken for the three major groups of recipients--employees, stockholders, and financial analysts. Over 85% of the stockholders expressed an interest in the quality of work life in the corporation and nearly two-thirds equated its importance with the firm's financial health. Employees were most interested in the quality of work life and most likely to rate it as equal to or more important than the firm's financial health. Financial analysts found the data more understandable and of the greatest help in understanding the quality of work life. These findings are understandable as it is hard to

imagine a group with greater interest in quality of work life than workers and a group with more familiarity with data than financial analysts. There were no differences between respondents with regard to their interest in other corporations issuing such audits.

In sum, although the findings by no means represented the reactions of a random sample of respondents, they did indicate great interest in the quality of work life, its measurement, and the issuance of a public, impartial audit of the corporation and of other firms. Moreover, the firm itself made extensive use of the data for internal management purposes. First, a written report summarizing the findings was given to each employee. Second, key managers were given oral briefings on the findings and potential follow-up actions were discussed. Third, special reports pertaining to key divisions were prepared and reviewed throughout the division's work force. By the end of the 1977 measurement, the external report and internal follow-up was described as an "essential business activity in the firm."

In 1979, this activity continued and the 1981 measurement is currently underway. Yet, in 1979, the results indicated a sharp drop in quality of work life in the firm and some managers favored an oral briefing only, lest employees distribute data and, in some way, harm the firm's good reputation. In addition, no public accounting of the 1979 results was issued in the special report. A closer look at "what happened" yields some further lessons on the design and implementation of information systems.

Implications for Design and Implementation

A review of the three findings of Study 1 helps explain what happened to the measurement program in the manufacturing firm. With respect to Finding 2, it is clear that top managers in the firm saw a

"need" for the measurements and public reports. The Chief Executive Officer described this need as follows:

Psychological research tells us that a key human need is to know where one stands and how one rates. A good manager has measurements for key areas of business. A Quality of Work Life audit provides valid data for one of the cornerstones that make a business successful - the human resources of the organization. For managers and for employees, it provides data about the human resources and organization climate that lets them know how they and the corporation are performing today, and are probably going to be performing in the days ahead. As with audited financial information, it is important to let others, outside the organization, know this information. Publishing the results of the Quality of Work Life audit demonstrates to stockholders, potential employees, customers, and suppliers the importance of management's frequently used statement that "...our people are our most important asset..."

By 1979, however, the "need" had changed. The firm had been acquired by a conglomerate whose management placed primary emphasis on financial measurements and results. Quality of work life measurements were seen as "frills." In addition, the firm had followed the Government Wage Guidelines and employee's satisfaction with pay and pay fairness had dipped sharply from the 1977 measurement. Managers who favored an oral briefing recognized that, indeed, the system had unearthed problems and that public disclosure could create more! "Why raise the visibility of the findings to the acquirer?" they asked, "and why risk unionization attempts fueled by our own statistics?" Others in top management argued forcibly that such problems could not be "wished away." As a result, reports were prepared and distributed to all employees but not to the general public.

Overall it was clear that top management's logic and "psychologic" had changed. No longer was it logical to issue a public report of the findings as there were no longer stockholders and analysts interested in the firm. Given the decline, however, no longer was it "psychologically"

logical to limit follow-up to an internal report and briefings of key people. So the system was refitted to be used for data feedback within the firm. The overall results were reported along with data on key hypotheses as to the impact of the acquisition, the wage guidelines, changes in the workforce composition, and other changes in the company as an aid in internal analysis and problem solving. In addition, "feedback" sessions were scheduled with all employees so that they might be more involved in problem solving. Still, this "solution" was not the solution to better human resource management.

The firm recognized that problems in work life were embedded in larger problems. Efforts were started to link the work life measurements with other human resource activities--selection, development, promotion, safety, pay administration, and even management decision making--and to integrate them with other personnel and financial measurement systems for control purposes. This activity, however, requires resources, commitments, and interest; but financial and human capital no longer comes from profits and from stockholders, it comes from an acquirer less concerned with management of the human organization and the "larger" problems therein. As of 1981, these monies were limited and little could be done. Finding 3 gains further support and yields a fourth proposition for designers of information systems:

Proposition 4.0: Systems cannot be solutions.

Looking Ahead

Our experiences in the foregoing cases show that it is possible to combine financial and non-financial indicators of the human organization into a "model" of the effectiveness of the firm and the quality of work life of its members. Further, it is feasible and desirable to distribute

information to all those having a "stake" in and custodianship of human resources; and, when linked with ongoing planning, accounting, and control functions in a firm, it can facilitate "social control" within a firm. But the foregoing has also shown that such systems are not "stand alone solutions" to the problems of managing the human organization. The reasons center on the elusive character of truly "social" control.

Both Mirvis and Lawler hold a normative perspective on social control; one that emphasizes broad-based dissemination of information and its participative use for problem solving and planning. Both have been influenced by the work of Chris Argyris and Rensis Likert whose research has focused on organization control systems and on the impact of particular organization characteristics in the control of human behavior (Argyris, 1952; Arutris and Schon, 1978; Likert, 1961, 1967). In light of Argyris's and Likert's theories, it is important to ask whether the kinds of internal information and external reporting systems presented here can promote the collection of valid information, its dissemination to all concerned with problems and their solutions, and its collaborative use in ways conducive to personal commitments to decisions and action steps.

Proposition 1.0 and its corollary 1.2 proposed that information systems cannot be solutions for those who have no problems or who have problems that can be wished or explained away. The evidence is incontrovertible that many contemporary businesses are having problems in their human organization: high turnover, increasing absenteeism, poor productivity, poor morale, hostile labor-management relations; the litany is endless. Yet, in many firms, these problems are "explained away" as resulting from lazy workers, incompetent managers, or government

intervention. In divisions, departments, and work units, countless other explanations are offered in this same vein. In these firms there is no commitment to valid information. Whatever is collected is melded into existing frames of reference and used to "thank" employees for their interest in the company and "assure" them that steps are being taken (by someone) to respond to their concerns.

Other firms, of course, take a different perspective on problems in their human organization and use different methods to address them. The "mini-revolution" in America's industrial relations bears witness to the breadth of these actions as does the evolution of new industrial practices in Europe and in Japan. The increased use of attitude surveys, of personnel audits, and of other measurement systems to gather valid information on the state of the human organization is a part of this trend. Indeed, Corollary 1.1 proposed that such information systems might serve to unearth problems and stimulate managers to undertake "data-based" management of their human organization. That assumes, however, as Corollary 2.1 noted, that managers find the data and its use for collaborative problem solving to be logically and psychologically appealing. Yet there were those in the bank and in the manufacturing firm that found the systems abstract and inconsistent with their own "models" of the human organization. Moreover, some at the bank were unable to use the system participatively and others at the manufacturing firm were unable to involve employees in problem solving. One manager at the bank summed up his views thusly: "You guys (the researchers) said it would be easy; it was hard to use the system (well)." Corollary 2.2 proposed that information systems are not solutions to all logical

and psychological problems. They will not, of themselves, make ineffective managers effective, directive managers participative, mistrusting personnel trustful. But they can be useful in managing the human organization when managers sense a problem, learn how to use them, and learn when to use them. Corollary 2.1 dictated the need for education, training, and support in development of this knowledge and skill.

Even with an acceptance of problems and a logically and psychologically appealing information system and, even with knowledgeable and skillful users, Proposition 3.0 and its corollaries imply that unless organizations (and by extension the larger society) address the "larger" problems of human organization and commit their resources to solving them, human resource information systems will not be part of the solution at all, indeed there will be no solution.

Is a solution in sight? We don't feel it is at the present time because collaborative social controls needed for effective use of these information systems are not present in most contemporary organizations. The organizational society itself, it seems, does not want to have an honest and public accounting of human resource management, does not want that information disseminated broadly, and does not support the collaborative use of the data. Lawler (1976) has argued that organizations should be held accountable for the quality of work life provided to employees and that regular measurements should be taken and reported to the public concerned with employee welfare and well being. His views were widely criticized in management and academic circles. Even the proposal to voluntarily measure social performance, advanced by the Department of Commerce (U.S. Department of Commerce, 1979), was vociferously rejected by the Business Round Table and other business groups.

The left/right view that organizations do not want to be held accountable for management of people prevails! At this same time labor leader William Wimpisinger argued against the use of survey instruments in organizations as they were the new "stopwatches" of the "efficiency expert" clique. The right/left view that organizations do not want an honest accounting of the management of people endures! Without collaboration between business, labor, and government, information cannot be used collaboratively. In this light, Proposition 4.0 implies that a "political" solution must precede any wide-spread adoption of information systems as solutions to organizational problems.

Whither the market? It might be argued that firms using internal information and external reporting systems could gain a "competitive advantage" and, thus, that the merits of these systems would be borne out in the marketplace. To be sure, the first study showed high users of the system achieved better "human" and "performance" results and study 2 showed investors and analysts to be very interested in the quality of work life in the manufacturing firm. The "market," however, also gave an advantage to bank managers who concentrated their energies on lending rather than managing and to the acquirer of the manufacturing company whose management and control philosophy stressed profits rather than people. In the short term, the market treats the human costs of poor human resource management as "externalities." In this light, Proposition 4.0 implies that a "market" solution must precede any wide-spread adoption of information systems as solutions to organizational problems.

Given current political and market conditions, then, it seems unlikely that "external" pressures will lead organizations, en masse, to

account for the management of human resources. Moreover, despite the "movement" to improve human resource management within American business, given "internal" political and market pressures, it seems unlikely that, even if established, such systems will last very long. Those pressures lead to concentration of power, centralization of authority, specialization of expertise, and standardization of procedures. Such principles of organization give advantage to power brokers who set their own standards of accountability, authority figures who favor top-down control processes, managers and work units who specialize in achieving short-run economies, and accountants who cannot be bothered developing measurement systems that account for "intangibles" like human welfare and the development of people. In that light, Proposition 4.0 implies that an "organization" solution must precede any wide-spread adoption of information systems as solutions to organizational problems.

Sadly, organizational behavior and accounting researchers may not be a part of the solution either. Much of the current organizational research espouses a "contingency" view of social control that proposes that authoritarian systems of management can be more "effective" in certain situations. (Such theories, however, typically focus on a short-run, limited view of effectiveness; they neglect to ask for whom the organization is to be effective, the society?, the employees?--and fail to consider the values embedded in autocratic vs. participative systems of managements and control.) And, the accountants resistance to accounting for intangibles and to making public "audits" of intangible measures a part of their work makes practical experimentation with an alternative view of social control seem "faddish." All of this can lead even the most devoted designers of internal information and external

reporting system that account for the human organization to drink and despair.

However, we are not willing to give up. There are signs that a "third wave" (Toffler, 1980) is upon the society that will fundamentally alter politics, markets, and principles of organization. Already big firms like General Motors have union and management employees collaboratively using a "high tech" computerized information system to address problems in the human organization. Many small firms are using "low tech" systems of face-to-face communications and newsletters to socially control their organizations. Moreover, more firms are also accounting for their investor's consumer's, and employee's concerns in social audits. Finally, there are accountants and organizational behaviorists, who are vitally involved in experimenting with large solutions to the large problems of truly effective organization. History may say that these researchers and experimenting organizations were among the first to don the "wet suits" and develop the "solutions" necessary for "riding the crest."

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